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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,058	07/09/2003	James Richardson Lattner	97B049-4	9531

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EXAMINER

DOROSHENK, ALEXA A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,058

Applicant(s)

LATTNER ET AL.

Examiner

Alexa A. Doroshenk

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 39-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "oxygen 30" from page 12, line 7. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 39-44, 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwarzenbek (4,090,948) in view of Owen et al. (5,328,593).

With respect to claim 39, Schwarzenbek discloses an FCC apparatus comprising:

Art Unit: 1764

a riser reactor (1/2) having a first end (1) and a second end (near 15);
the first end (1) of the riser having a feed inlet (32);
the second end (near 15) having a diameter greater than that of the first end (1)
(see figure 1) and the riser having a vapor velocity of 5 to 60 ft/sec or 1.524 to 18.288
m/sec (col. 10, lines 8-10);
the second end (near 15) being connected to a disengaging zone (3);
the disengaging zone (3) having a first catalyst discharge line (8) and a second
catalyst discharge line (5) in communication with a regenerator (6);
said regenerator having an inlet for regeneration medium (23, 24) and an outlet
for catalyst (7);
the first catalyst discharge line (8) and the outlet of the regenerator (7) are in fluid
communication with the first end of the riser (1).

Schwarzenbek fails to disclose wherein the second end of the riser is externally
connected to a disengaging zone since the second riser end is internal to the
disengaging zone.

Owen et al. also discloses an FCC apparatus comprising a riser reactor (6)
wherein the diameter of the second end (near 10) is greater than the first end (near 2),
the second end is connected to a disengaging zone (17) and the disengaging zone
feeds catalyst to a regenerator (24) which feeds catalyst to the riser (via 32). In the
apparatus of Owen et al. the disengaging vessel is connected externally to the riser
reactor and Owen et al. teaches that such a design achieves some efficiencies because
of the location of the stripper's location directly over the regenerator (col. 2, lines 5-11).

Art Unit: 1764

It would have been obvious to one of ordinary skill in the art at the time the invention was made to externally attach the second end of Schwarzenbek's riser to the disengaging vessel in order to gain efficiencies in the catalyst regeneration steps, as taught by Owen et al.

With respect to claim 40, Schwarzenbek further discloses wherein the disengaging zone comprises at least one cyclone (10).

With respect to claim 41, Schwarzenbek further discloses wherein the cyclone separator has a catalyst discharge end (16) and a product discharge end (not numbered) which is in fluid communication with a product outlet line (17) at a second end of the disengaging zone (3).

With respect to claim 42, Schwarzenbek further discloses wherein the disengaging zone (3) is in fluid communication with a stripping zone (4) and the second catalyst discharge line (5) is located below the stripping zone (4).

With respect to claim 43, Schwarzenbek further illustrates wherein the stripping zone (4) is located within the disengaging zone (3).

With respect to claim 44, Schwarzenbek fails to disclose wherein a catalyst cooler is in communication with the regenerator.

Owen et al. also teaches a catalyst cooler (28) in communication with the regenerator (24) in order to remove heat from the regenerator (col. 5, lines 17-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a catalyst cooler to the regenerator of Schwarzenbek in order to

Art Unit: 1764

remove heat from the regenerator, as taught by Owen et al. and further control the process.

With respect to claims 46 and 47, Schwarzenbek discloses a second feed inlet (33) located at the second end or between the second end (near 15) and the first end (1) of the riser.

4. Claim 45 rejected under 35 U.S.C. 103(a) as being unpatentable over Schwarzenbek (4,090,948) in view of Owen et al. (5,328,593). as applied to claim 44 above, and further in view of Wegerer et al. (5,451,313).

Schwarzenbek, as modified by Owen et al., discloses an external cooler (Owen, 28) which recycles catalyst back to the regenerator, but fails to disclose where the cooler also has a line which is coupled to the first catalyst discharge line (from the disengaging zone).

Wegerer et al. also teaches an FCC apparatus with a reactor riser (16), disengaging zone (10) with two catalyst outlets, one (42) to a regeneration zone (12) and the other (22) to the first end of the riser. Wegerer et al. also teaches having an external catalyst cooler for heat recovery from the regenerator wherein the catalyst can return to the regenerator and/or return to the first end of the riser (blending zone) (col. 14, lines 3-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to also provide the catalyst cooler outlet to the riser in the modified apparatus of Schwarzenbek in order to improve the efficiency of the apparatus, as taught by Wegerer et al.

Response to Arguments

Drawings

The objections to the drawings from paper no. 20041211 are withdrawn. The objection of paragraph 1 was made in error and the correct objection is presented above. The objection of paragraph 2 is withdrawn due to applicant's amendments.

Specification

The objection to the specification is withdrawn due to applicant's amendments.

Rejections of Prior Art

Applicant's arguments with respect to claims 28-38 have been considered but are moot since applicant has cancelled said claims and presented new claims.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1764

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexa A. Doroshenk
Primary Examiner
Art Unit 1764